REMARKS

The Examiner rejected claims 1, 3, 4, 6-9, 13, 14, 19, 21, 23, 24, 26-35 as failing to comply with the written description requirement. The applicant believes that the phrase "spatially displaced at said location simultaneously" is sufficiently described in the specification. However, in order to most easily overcome the Examiner's rejection, the claims have been amended to remove this limitation.

The Examiner rejected claims 1, 19, and 21 under 35 U.S.C. Section 103(a) as being unpatentable over Asao et al. US 2003/0107538 in view of Zhang et al., U.S. Patent No. 5,461,397.

Asao et al. disclose a display device that includes a plurality of pixels and a control means for effecting a plurality of displaying operations at each pixel. Each of the displaying operations includes at least a first operation for displaying a first image at a first luminance and a subsequent second operation for displaying a second image substantially identical to the first image at a second luminance.

In particular, with reference to FIG. 19 and paragraph 17, Asao et al. disclose that the color light source driver 102 receives synchronization signals from the drive signal. The pixel data (i.e. display data of FIG. 19) is provided to the Y driver 92. The drive voltage, which is typically a reference voltage, is provided to the Y driver 92 and the X driver 91. The drive signal, which is a synchronization signal, is provided to the color light source driver 102, the Y driver 92, and the X driver 91. The synchronization signal does not include the pixel values. The scanning data is provided to the X driver 91. With reference to paragraph 73, Asao et al. disclose that the entire backlight is uniformly illuminated at a predetermined first level during one sub-field period and that the entire backlight is uniformly illuminated at a predetermined second level during another subfield period. Accordingly, the backlight layer provides uniform predetermined output across the display, albeit at different predetermined intensity levels at predetermined temporally different times.

In particular, the synchronization signal is not based upon the pixel data nor is it based upon the content of the image, but is rather merely based upon the timing data for the different frames. Moreover, the color light source driver 102 will provide the same illumination pattern and illumination levels without regard to what image is being displayed.

Zhang et al. disclose a liquid crystal display device comprising a backlight device 32, which contains N subsections of independently controllable color light pulse generation elements and a backlight driver 108. Zhang et al. disclose, as illustrated in FIG. 2, that each of the backlight sections are uniformly illuminated and each is illuminated to the same intensity level, albeit at temporally different times during a frame. Accordingly, in all cases, the illumination provided to the liquid crystal material has a non-zero uniform illumination.

Claim 1 patentably distinguishes over Asao et al. in view of Zhang et al. by claiming spatially varying the luminance of a light source illuminating a plurality of displayed pixels in response to a plurality of pixel values dependent on the content of an image to be displayed on the display.

In contrast, Asao et al. disclose a display system wherein the luminance provided by the backlight is not dependent on the pixel values nor the content of the image. Moreover, Asao et al. does not include any mechanism to support modification of the backlight based upon the pixel values nor the content of the image.

In contrast, Zhang et al. disclose a display that has a spatially displaced light source that is either fully 'on' or fully 'off' depending on which sub-section is fully illuminated. Moreover, Zhang et al. fail to disclose illumination of the backlight based upon the pixel values nor the content of the image.

There is no suggestion nor motivation in Asao et al. to modify their system in the claimed manner. Further, even if Asao et al. was modified in the manner suggested by the Examiner, it would still not include a backlight that is illuminated based upon a plurality of pixel values dependent on the content of an image to be displayed on the display.

Claim 1 has been further amended to further patentably distinguish over the cited prior art by claiming modifying the illumination from the display based upon a filter that is determined at least in part by a non-uniform illumination profile of the light source. See, specification, page 8, lines 25-28, and FIG. 2 which illustrates light emitting diodes which inherently have a non-uniform profile.

Both Asao et al. and Zhang et al. fail to disclose modification of the illumination of the display based upon filtering that is based in part by a non-uniform illumination profile of the

light source. The backlights of Asao et al. and Zhang et al. are considered to have uniform light output to the liquid crystal layer for the backlight regions, and accordingly, there is no motivation to filter based upon non-uniform illumination profile, since the profile would be considered to be uniform.

Claim 1 has been further amended to further patentably distinguish over the cited prior art by claiming regions of the image that are sufficiently dark are attenuated by reducing the luminance of the light source and wherein regions of the image that are not sufficiently dark are not attenuated in the same manner as the sufficiently dark regions by reducing the luminance of the light source. See, specification, page 10, line 18 to page 11, line 11, and FIG. 5.

Both Asao et al. and Zhang et al. fail to disclose modification of the illumination of the display to reduce the backlight in those regions of the image that are sufficiently dark. The backlight of Asao et al. is illuminated in a fashion to provide a human sensible high speed motion picture image without largely impairing a luminance or brightness of the resultant display device. See, Asao et al., paragraph 69. The backlights of Zhang et al. are illuminated in a fashion to provide color light pulses to be generated in synchronization with the scanning operation of the front end unit, to produce color images through time sequential color mixing. See, Zhang et al., abstract. In neither case is the backlight attenuated in dark regions, as claimed.

Claim 1 has been further amended to further patentably distinguish over the cited prior art by claiming modifying the light to be output from the display by rescaling the light to be output from the display in such a manner to alter the tone-scale of the light to be output from the display from a state that would have substantially non-uniform tone-scale to a state that has substantially uniform tone-scale resulting from the luminance of the light source. See, specification, page 9, lines 8-22.

Both Asao et al. and Zhang et al. fail to disclose modification of the light to be output from the display by rescaling illumination of the display in such a manner to alter the tone-scale of the light to be output from the display. The backlights of Asao et al. and Zhang et al. are at predetermined output levels and accordingly, the tone scale of the images will not vary based upon the image content. Accordingly, there is no motivation to modify the tone-scale, as

claimed. Moreover, there is no realization of a potential problem that the tone-scale could be altered by changing the level of the backlight.

Claims 3, 4, 6-9, 27, 30, and 33 depend from claim 1, either directly or indirectly, and are patentable for the same reasons asserted for claim 1.

Claim 36 has been added that is patentable over the prior art of record for the respective reasons provided above.

This Amendment is being submitted with a Petition for Extension of Time, together with the requisite fee. The Commissioner is hereby authorized to charge any additional fees, or credit any overpayment, to Deposit Account No. 03-1550.

If the Examiner believes that for any reason direct contact with applicant's attorney would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the number below.

Applicant submits that no fees are required for entry of this Response. If any fees are deemed necessary, however, the Commissioner is authorized to charge the requisite fee to Deposit Account No. 03-1550.

Respectfully submitted,

CHERNOFF, VILHAUER, McCLUNG & STENZEL

By:_____

Kevin L. Russell, Reg. No. 38,292
1600 ODS Tower
601 SW Second Avenue
Portland, OR 97204
Tel: 503-227-5631
Fax: 503-228-4373

Dated: February 14, 2006